

D-Link®

DE-220P

Ethernet

Network Interface Card
for ISA Bus PC

**PLUG
AND
PLAY**

Installation Guide

Ethernet Card

Model DE-220P series

(DE-220PCAT, DE-220PCT DE-220PT)

Installation Guide

Rev.05(Jan. 1997)

6DE-220-P..-05

Printed in China

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Unmanaged and managed hubs	Lifetime *
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Concentrators	One year
Internetworking products	One year
* Power supply and fans in these devices	One year
Other hardware products	One year
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FCC CERTIFICATIONS

■ **FCCID:**

DE-220PCAT : KA2APC26OPI

DE-220PCT/PT : KA2APC26OPO

The device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction manual, may cause interference in which case user will be required to correct the interference at his own expense.

This product generates and uses energy of about the same frequency as radio and TV broadcasts. Installed incorrectly, it may interfere with reception of radio and TV broadcasts.

If you suspect this product is causing interference, turn your computer on and off while the radio or TV is showing interference. If the interference disappears when you turn the computer off and reappears when you turn the computer on, something in the computer is causing interference.

To reduce interference, try these suggestions:

- Change the direction of the radio or TV antenna.
- Move the computer, radio or TV. For example, if the computer is to the right of the TV, move it to the left of the TV. Or move them farther apart.
- Plug the computer into a different electrical outlet than the radio or TV.

ensure that all expansion slots (on the back or side of the computer) are covered. Also ensure all metal retaining brackets are tightly attached to the computer.

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Introduction

The D-Link DE-220P Series is a new line of Plug and Play Ethernet, adapters based on the technology of D-Links best-selling DE-220 Ethernet adapters. Plug and Play (PnP) technology provides automatic configuration of newly installed devices without, user intervention, eliminating much guess-work from installation of PC upgrades.

Ease of use is the hallmark of the DE-220P Series. After installing a DE-220P Series card, configuration is exceedingly simple for both traditional (non-PnP) systems and the newer PnP-compliant, systems.

For PnP systems, simply install the DE-220P Series card into an expansion slot. Configuration by the system software then proceeds automatically. If multiple network interface cards are installed, the PnP system guarantees that, there are no conflicts among them.

For non-PnP systems, just, install the DE-220P Series adapter into an available expansion slot, then run the supplied setup program, `setup.exe`. Online help answers your questions, and an advanced diagnostic

program is supplied for testing adapter functions and communication with other computers on the network.

Features

DE-220P Series Ethernet, adapters comply with IEEE 802.3 Ethernet standards, and use VLSI components for enhanced reliability. The following features distinguish D-Link DE-220P Series Ethernet, adapters:

+ Easy Installation

DE-220P Series Ethernet, adapters have no physical jumpers or DIP switches. Thus it, is never necessary to remove a DE-220P Series card in order to reconfigure. When installed in a PnP-compliant system , configuration is handled entirely by system software, with no user intervention. In non-PnP systems, configuration is accomplished by running the supplied setup program.

+ Support, for 8-bit, and 16-bit. Expansion Slots

DE-220P Series Ethernet, cards can be installed in 8-bit, (XT-style) or 16-bit (AT-style) expansion slots. The adapter will automatically detect the type of its expansion slot.

- ◆ NE-2000 Drivers

DE-220P Series Ethernet adapters are fully compatible with network drivers for Novell NE-2000 adapters.

- ◆ Diagnostic Program

A supplied diagnostic program tests all functions of the DE-220P Series adapter and verifies its communication with another computer on your network.

- ◆ LEDs

Two LEDs provide network state information:

1. PWR/Tx Indicator

Steady green (Power indicator) shows that the adapter has power (computer power is ON and power is supplied to the adapter).

Flashing green (Transmission indicator) shows that the computer is transmitting onto the network. This function applies only when the network medium is twisted-pair cable.*

* See Footnote 5, Page 2-12.

2. LNK/Rx indicator

Steady green (Linkage indicator) shows that there is a good data linkage to the network.

Flashing green (Reception indicator) shows that, the computer is receiving from the network. This function applies only when the network medium is twisted-pair cable.'

+ Remote boot option

A Remote Boot, ROM is available per optional order. The Remote Boot ROM easily snaps into a mount on the DE-220P Series card to provide for remote booting of computers which do not, store a boot. program.

+ Runs a wide variety of networking software

DE-220P Series Ethernet adapters can be used with these networking systems:

- | | |
|------------------|---------------------------------------|
| D-Link LANsmart, | D-Link TCP/IP for DOS |
| NDIS driver | Novell NetWare 3.x and 4.x ODI driver |
| MS LAN Manager | Windows for Workgroups |

² See Footnote 5. Page 2-12.

Windows 95	Windows NT & Windows NT Advanced Server
SUN PC-NFS	DEC Pathworks
Banyan VINES	IBM LAN Server & PC LAN Support Program
Packet, Driver	3Com 3+Open & 3Com 3+Share
FTP PC/TCP	WIN/TCP Pathway Access for DOS
SCO UNIX	AT&T UNIX
UNIXware	Solaris UNIX

Overview of PnP

Plug and Play technology (PnP) is defined by Plug and Play ISA Specification v. 1.0a. A fully functional PnP system includes a PnP-compliant, operating system, a PnP system BIOS, and PnP-compliant, interface cards. Windows 95 is the first popular PnP-compliant operating system. Computer mainboards with PnP BIOS's are just reaching the market.

In the interim, PnP technology still provides substantial benefits. For example, after installing a non-PnP-compliant, Ethernet, adapter card (a traditional, non-PnP-compliant, card may be called a legacy card) into

an expansion slot, of a PnP-compliant mainboard, the user can run the ISA Configuration Utility (ICU) to configure the adapter.

For some legacy cards, the user will need to set, DIP switches or jumpers on the card to configure it. to the system resources reported available by the ICU. With other legacy cards like the D-Link DE-220 and DE-220E, configuration is accomplished by running the supplied setup program.

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Installation

CAUTION: *Under ordinary circumstances, a DE-220P Series card will not be affected by static charge as may be received through your body during handling of the unit. In special circumstances where you may carry an extraordinarily high static charge, it is good practice to reduce the charge by touching a ground before handling the adapter.*

Installation of a DE-220P Series Ethernet, adapter requires these three steps:

- + Install the adapter into an available expansion slot.
- + Connect, network cable to the adapter.
- + For non-PnP systems, configure the adapter by running the supplied setup program, `setup.exe`. (For PnP-compliant, systems, this step is fully automated and requires no action.)

This chapter provides detailed procedures for these three steps. When these steps are completed, you may

run the diagnostic routines of `setup.exe` program to test the configuration.

Single-Adapter Installation

1. Shut down the computer, unplug its power cord, and remove the chassis cover.
2. Insert the DE-220P Series card into the connector of any open ISA expansion slot. You may choose either an 8-bit or 16-bit, expansion slot. A 16-bit slot, will provide better network performance. Ascertain that, the card is fully seated in the expansion slot connector.
3. Install the bracket, screw which secures the card to the computer chassis.
4. Replace the computer's chassis cover.
5. For non-PnP systems, configure the DE-220P Series adapter by running the supplied setup program, `setup.exe`. (For PnP-compliant systems, this step is fully automated and requires no action.)

Multiple-Adapter Installation

Multiple DE-220P Series cards may be installed in a computer to provide for multiple addresses, or in the case of a server, to provide for network segmentation.

Multiple Cards in a PnP System

No special attention is needed when installing multiple DE-220P Series cards in a PnP-compliant system (so long as Plug and Play is enabled). Install the several cards into their expansion slots, following the four steps set out in the “Single-Adapter Installation” section above (repeating steps 2 and 3 for each card). When computer power is switched on, the PnP system will automatically select coordinated (conflict,-free) configuration settings for the several cards.

-
- 3 Plug and Play functionality of the NOS may be toggled between enable and disable by a selection in your setup.exe run.

Multiple Cards in a Non-PnP System

In non-PnP systems, the procedure for configuring multiple DE-220P Series cards is basically a sequence of separate single-adapter procedures: make a preliminary installation of each card alone in turn: make a **setup.exe** run to configure that card, then remove that card and go on to the next.

CAUTION: *The following procedure involves operation of the computer without its chassis housing in place. Caution is necessary in order to avoid contact with exposed high-voltage parts. Accidental contact with exposed internal **parts** can **cause** personal injury and can cause damage to the computer equipment.*

1. Make a preliminary installation of the first, DE-220P Series card by completing Steps 1 through 3 as set out in the "Single-Adapter Installation" section above.
2. Restore power to the computer, and configure the card by running the supplied setup program, **setup.exe**. Make a note of the configuration settings that, you select, to help you select, *different* settings in configuring the remaining cards.
3. Shut down the computer and unplug its power cord. Remove the (configured) card, and install **the next** DE-220P Series card into **any open** expansion slot.

4. Restore power to the computer, and configure the card by running the supplied setup program, **setup.exe**. Be certain that you select, different configuration settings from those that, have been selected for another card. Make a note of the configuration settings you select, to help you select *different* settings in configuring remaining cards.
- 5 Repeat Steps 3 and 4 as necessary to configure all DE-220P Series cards which are to be included in the multiple-card installation.
6. Shut down the computer and unplug its power-cord. Re-install all of the configured cards. Replace the computer's chassis cover.

Network Cable Connections

Before connecting a network cable to the DE-220P Series adapter, ascertain that your DE-220P model suits your network cable medium, as summarized in the following table.⁴ Then refer to one of the three

⁴ Models DE-220PCT and DE-220PCAT feature multiple network cable connectors for convenience during network cable upgrades, and for versatility when your equipment is moved between areas with different types of network media. Only one network cable may be connected to any adapter in any given installation.

sections following, according to your network cable type.

Model	Network Cable Types
DE-220PT	Twisted-Pair ⁵ only
DE-220PCT	Thin Coaxial ⁶ and Twisted-Pair
DE-220PCAT	Thick Coaxial ⁷ , Thin Coaxial, and Twisted-Pair

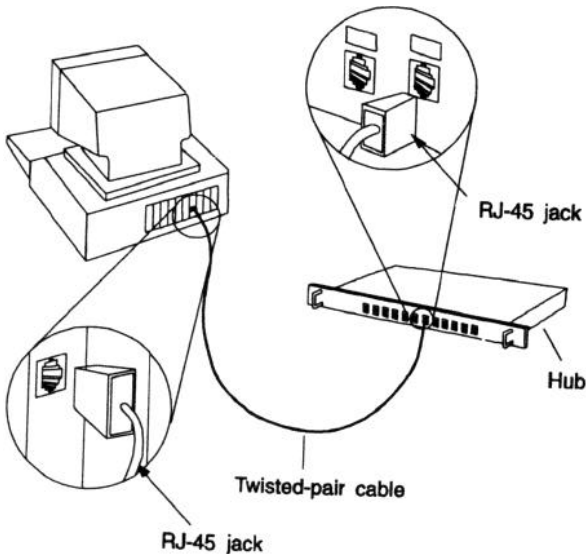
⁵ Twisted-pair (TP) cable features RJ-45 connectors, and is available with or without EM shield. TP cable without EM shield is also known as 10BaseT cable or UTP (Unshielded Twisted-Pair) cable. TP cable with EM shield is known as screened twisted-pair cable, and the EM shield may be either an aluminum sheath or a copper braid enclosing the twisted-pair bundle.

⁶ This medium features BNC connectors and is known by a variety of other names, including 10Base2 cable, BNC cable, and RG-58 cable.

⁷ This medium features AUI connectors and is also known as 10Base5 cable. It is sometimes called by names such as "frozen yellow garden hose," due to its bulk, weight, and stiffness.

The Network Medium is Twisted-Pair Cable

1. Ascertain that, you have a straight,* twisted-pair cable not, more than 100 meters (328 feet) in length for the network connection.



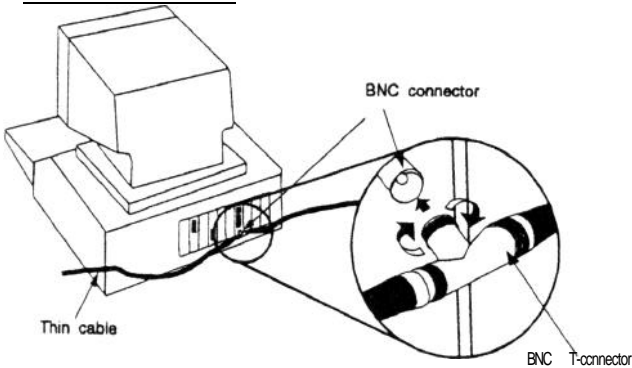
8

Pins 1 and 2 must be a pair (the connected wires must be a twisted pair in the cable makeup) and pins 3 and 6 must be a pair. Each pin must connect, straight through the cable (that is pin 1 through to pin 1 of the opposite connector, pin 2 to pin 2, pin 3 to pin 3, and pin 6 to pin 6: pins 4, 5, 7, 8 are not used).

2. The cable will have an RJ-45 plug on each end. Plug one end into the RJ-45 receptacle of the DE-220P Series adapter, and plug the other end into an available port, of a IOBase-T hub. Push each RJ-45 plug into its receptacle until its retainer snaps into place.

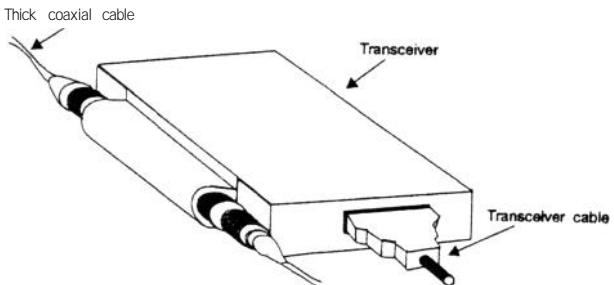
The Network Medium is Thin Coaxial Cable

1. Connect, a BNC T-connector onto the BNC receptacle of the DE-220P Series card.
2. Connect, the network feed cable onto either open end of the BNC T-connector.
- 3a. If the cable continues on to an additional station or stations, then connect. the continuation cable onto the remaining open end of the BNC T-connector.
- 3b. If the network cable does not, continue to additional stations (your computer is at, the end of the cable), then connect, a 50-ohm terminator to the remaining open end of the BNC T-conector.



The Network Medium is Thick Coaxial Cab/e

1. If there is no Ethernet transceiver (tap) in place for your computer's station on the network cable, then install a transceiver (not supplied).
2. Connect. one end of an AUI cable to the Ethernet, transceiver.
3. Connect. the other end of the AUI cable to the AUI connector of the DE-220PCAT.



Specifications

Model:	DE-220PCAT	DE-220PCT	DE-220PT
AUI connector for thick coaxial	YES	NO	NO
BNC connector for thin coaxial	YES	YES	NO
RJ45 connector for twisted-pair	YES	YES	YES
CE / FCC Class B	YES	YES	YES
Maximum power consumption	3.5 Watts	3.5 Watts	1 Watt
Size (cm)			
IRQ options			
I/O Base Address options	240H, 260H, 280H, 2A0H, 2COH, 2EOH, 300H, 320H, 340H, 360H, 380H		
Boot ROM Size	16K (supplied per optional order)		
Boot Base Address options	C800H, CCOOH, WOO, D400H, D800H, DCOOH		
LED Indicators	Power/TX (Green), Rx/Link (Green)		
Operating Temp.	32°F to 131°F (0°C to 55°C)		
Storage Temp.	-4F to 176°F (-20°C to 80C)		
Humidity	10% to 90% non-condensing		